

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 94-001

Docket Nos. None, None, 070-00014, 070-00058, 070-00908, 070-00932,
070-00058, 040-03296

License Nos. 19-01398-20, 19-01398-32, SNM-11, SNM-53, SNM-849, SNM-907,
SNM-1192, STB-00187

Licensee: Martin-Marietta Aero & Naval Systems
103 Chesapeake Park Plaza
Baltimore, MD 21220

Facility Name: Middle River Facility and Martin State Airport

Inspection at: 2323 Eastern Blvd
Baltimore, MD
and
701 Wilson Point Road
Baltimore, MD

Inspection Conducted: November 3, 1994

Inspector:

Stephen W. Holmes
Stephen W. Holmes, Radiation Specialist

01/23/95
date

Approved by:

John D. Kinneman
John D. Kinneman, Chief
Site Decommissioning Section

1/23/95
date

Inspection Summary: Closeout Verification Inspection No. 94-001.

Areas Inspected: Announced, inspection and survey of Buildings C and D at the Martin-Marietta Middle River facility and Buildings KJ and KC at the Martin State Airport.

Results: No radiation levels above background were detected and no indication of contamination was found in any of the buildings. Based on information obtained from NRC files, Martin-Marietta and Raytheon (formerly EBASCO) employees and former employees, statements from the present owners, and the inspectors' surveys, these facilities are suitable for unrestricted use.

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DETAILS

1.0 Persons Contacted

- Joseph Alcarese, Esq.
Joanne Brooks, Environmental Specialist, Environmental Program Manager,
Maryland Aviation Administration
Richard Brisson, former Acting Program Administrator, Maryland Dept. of
the Environment, Radiological Health Program and former
Martin-Marietta/Isotopes, Inc. employee
Thomas Flynn, Jr., Engineer, Raytheon (formally Ebasco Services, Inc.)
* Ray Manley, Inspector, Maryland Department of the Environment
Glen Peregoy, Engineer, Martin State Airport
* Jeffrey G. Smith, Manager Environmental Affairs, Martin Marietta
Jake West, Manager, Martin State Airport

* denotes those present at exit interview

2.0 Background

2.1 General

As part of a program to ensure that facilities where activities authorized by AEC and NRC licenses that have been terminated were suitable for release for unrestricted use as specified in current NRC criteria, the docket files for License Nos. 19-01398-20, 19-01398-32, SNM-11, SNM-53, SNM-849, SNM-907, SNM-1192, and STB-187 were reviewed. Based on information in the files, the radiological status of four buildings could not be determined with certainty. These are Buildings C, D, on the Martin Marietta Corporation Middle River Facility and KJ (critical facility), and KC (radioisotope laboratory) on the Martin State Airport. Therefore, an onsite inspection was conducted. Prior to the on-site inspection, available records pertaining to the licensing, operation, and decommissioning of the activities in and around these buildings were reviewed by the inspector. Additionally, the inspector contacted two persons who had direct contact with these sites during actual operations or decommissioning: Mr. Thomas A. Flynn, Jr. the Project Manager of the 1965 "dismantling" of the Liquid Fluidized Bed Reactor (LFBR) at Building KC and Mr. Richard Brisson, a former employee of both Martin-Marietta, and Isotopes, Inc. Information obtained from these sources is documented in pertinent sections of this report.

2.2 Building D

Building D was located at the Martin-Marietta's Middle River, Maryland facility which is also called Chesapeake Park. Under License Nos. 19-01398-32, SNM-11, SNM-53, SNM-1192 and STB-187 a wide range of byproduct, source and special nuclear material were used in connection with various research and development activities in addition to work under government contracts. The facility was decontaminated in late 1970 under License No. SNM-1192, the license terminated, and the building subsequently demolished, leaving only the concrete basement floor/pad. An NRC inquiry regarding the site in June 1982 concluded that the site met the then current criteria for unrestricted use (Report Nos. 040-

03296/82-01 and 040-02308/82-011). However, there was no indication that a verification of the licensee's commitment to seal five contaminated grains with concrete was made.

2.3 Building C

Building C, also located at the Middle River site, was to have been used under License No. SNM-849 for operations involving encapsulated Pu-238 in conjunction with SNAP reactors and testing of fuel capsules and radioisotope generators containing Pu-238. This was reported to have occurred in the Environmental Test and Large Vacuum Chamber Laboratories. The building, which was being used as a warehouse at the time of this inspection, is a very large hanger type structure with a corresponding large basement. No records were available regarding the location of the laboratories within the building nor were any records of a termination or confirmatory survey of the facility available. Mr. Brisson stated that, to the best of his knowledge, only environmental and physical testing of the fueled SNAP and other radioisotope generators was performed in Building C and that no unsealed radioisotopes were used there. Additionally, he stated that the laboratories were located in the basement at the south west corner of the building and occupied an area no larger than 100' x 150' or 5 support pillars by 6 support pillars.

2.4 Building KJ

License No. 19-01398-20 was issued to Martin-Marietta for processing of Am-241 and Cm-242 in Building KJ which was designated the Radioisotope Laboratory and is located on the Martin State Airport property referred to as Strawberry Point, on a dirt access road off Strawberry Point Road, 330' S.W. of Building KC. This type of work had been previously performed in Building "D". The license was transferred to Isotopes, Inc. without a change in license number or location of work. In late 1969, Isotopes, Inc. requested termination of the license, simply stating that all radioactive material possessed under the license had been disposed of in accordance with 10 CFR 20 by transfer to a company authorized to receive the licensed material. The AEC terminated the license without comment. No record of a termination or confirmatory survey is in the docket file. Mr. Brisson stated that production processing did not occur in Building KJ and that only small source (μ Ci amounts of Am-241, no Cm-242) developmental operations to verify the chemistry were performed in the building. He and one other member of the Isotopes, Inc. staff performed the final cleanup and survey of the facility, including the removal and disposal of the HEPA filters. According to his memory, the survey demonstrating that the facility was ready for unconditional release was sent to the AEC contracting office on Hudson St., N.Y., N.Y.

2.5 Building KC

Building KC, the Critical Test Facility, was located 330' North East of Building KJ. The Martin-Marietta LFBR was situated in one of the building's three "test cells". Under License No. SNM-53 completed MH-1A fuel assemblies were stored in the test cells. License No. SNM-907 was issued to Ebasco Services, Inc. in 1965 for dismantling and removing the LFBR. The license included a provision to provide records of a post removal survey to the AEC's New York Operations Office and to Martin Marietta. Although a pre-dismantling survey was performed, no records of the required post removal survey could be found in the docket file. However, it was noted in the file that the LFBR never achieved criticality. Mr. Flynn stated that meticulous care was taken during the dismantling to prevent the spread of any contamination. Further, he stated that an AEC Inspector/Health Physicist from the New York Field Office/Laboratory was on site, oversaw the final survey, and signed the final report that asserted the dismantling of the LFBR had not added to or increased the contamination from the levels measured before the operation. Mr. Brisson confirmed that Ebasco's work produced no contamination throughout the rest of the building. Mr. Brisson also stated that his group decontaminated the underground LFBR water dump/holding tank by sandblasting the insides and disposing of the residue at a licensed burial site.

3.0 Instruments Used in Survey

During the survey three instruments were used, an Eberline PRM-6 with a 1" scintillator probe and a Ludlum Micro R meter Model 19 were used by the state inspector while a Ludlum Micro R meter Model 12 was used by the NRC inspector. The meters were calibrated, functional, and would detect gamma emitters of low energy and with good sensitivity. Based on the isotopes in question, these instrument were appropriate for this survey.

4.0 Survey Results

4.1 General

On November 3, 1994 surveys of each building/site were performed jointly by the NRC and State of Maryland inspectors. The inspectors surveyed each facility thoroughly and kept each other informed as to the results. The surveys were performed with the Micro R meters held at 0.5 meters above the surface with a forward movement of about 1.0 meters per second. In addition to Mr. Smith, who accompanied the inspectors to each site, Mr. Peregoy was present during the surveys of Buildings KC and KJ on the Martin State Airport property.

4.2 Building D

The Building D site was being use to store trailers under contract with the Army. The site consisted of a large concrete pad, the leftover basement floor of the old building. The pad had numerous cracks, holes, and was very weathered after two decades of exposure to the elements.

The inspectors surveyed the concrete pad along parallel lines 5 meters apart, paying attention to drains, clean-outs, and holes in the pad. In addition to measurements taken at drains and clean-outs, surface contact readings were also taken at approximately 10 meter intervals. Numerous sealed/filled in drains/clean-outs/penetrations/holes in the pad were located. Although a few places were found where a hole in the pad had been filled with concrete, it could not be determined if these were any of the drains referred to in the closeout survey. Martin Marietta staff stated that the rubble from the demolition of the building was the responsibility of the contractor and was removed and believed to have been disposed of in a landfill. No detectable radiation levels above background ($5\mu\text{R/hr}$) were found. No development or other use of the site is planned by Martin Marietta.

4.3 Building C

The Building C area where the old Environmental Test and Large Vacuum Chamber Laboratories were located is now warehouse space and a large empty room. With the exception of the support columns, no original walls, floors, ceiling, or ducts are left. The inspectors surveyed the area along parallel lines at 5 meter intervals with surface contact measurements every 5 meters and at drains and original concrete support columns. No radiation levels above background ($5\mu\text{R/hr}$) were detected.

4.4 Building KC

Building KC is at the end of a dirt access road off Strawberry Point road just east of the eastern most taxi way. The property was purchased in toto by the State of Maryland in 1975 and although the building was used in the past for storage, it has been abandoned and left open to the elements for the past ten to fifteen years. The site was completely abandoned, overgrown, exposed to the elements (of the three "test cells" only the one where the LFBR had been housed still had it's outer doors). The inspectors performed a walk-through survey of all three cells, the entrance way and connecting halls. Surface contact measurements were performed randomly throughout the building. The office/control room area was not entered due to the cluttered condition of and the layer of asbestos ceiling tiles covering the floor. No radiation levels above background were detected. Although an attempt was made to locate the underground dump/hold-up tank described by Mr. Brisson, the inspectors were unable to locate the tank or any indication that it had been removed. Based on discussion with Martin-Marietta and Martin State Airport personnel, it is believed that the tank was abandoned in place after the decontamination described in Section 2.5. The planning representative of Maryland Aviation stated that the building had been scheduled for demolition after remediation of the asbestos, but the plans were delayed due to finances. He stated that the building would be razed and the rubble disposed of as normal waste.

4.5 Building KJ

Building KJ is 300' S.W. of building KC along the dirt access road. The

site was also completely abandoned, overgrown, exposed to the elements. The doors into the laboratory and, mechanical equipment room and office were ajar leaving the interior open to the outside. The inside was littered with "junk", leaves, bird and animal droppings, and dirt. A fair number of 100 lb. bags of "solidified" lime were present, as the building had been use for storage by the State of Maryland in the past. Rusted laboratory furniture and discarded fire extinguishers also littered the floor. The stainless steel ventilation duct-work and the laboratory hoods were still present less the duct-work section that had contained the HEPA filters. The inspectors surveyed the remains as well as possible given the state of the building. No radiation levels above background were detected. The planning representative of Maryland Aviation stated that the building, just like Building KC, had been scheduled for demolition after remediation of the asbestos, but the demolition was delayed due to finances. He stated that the building would be razed and the rubble disposed of as normal waste.

5.0 Conclusions

No radiation levels above background were detected and no indication of contamination was found in any of the buildings. Based on information obtained from NRC files, Martin-Marietta and Raytheon (formerly EBASCO) employees and former employees, statements from present owners, and the inspectors' surveys, these facilities are suitable for unrestricted use.

6.0 Exit Interview

The inspector met with the Martin-Marietta and Maryland Department of the Environment representatives listed in Section 1.0 of this report and discussed the scope and findings of this inspection. They acknowledged the inspection findings and the statements documented in this report. Messrs. Flynn and Brisson were contacted by telephone and also confirmed their statements in this report.